Rev.06.26.07
smt05e_12


# SMT05E Series
## 12 Vin single output

**Total Power:** **16.5W**
**Input Voltage:** **10 - 14 Vdc**
**# of Outputs:** **Single**

## Special Features

- 5 A Current rating
- Input voltage range: 10 Vdc to 14 Vdc
- Output voltage range: 0.8 Vdc to 3.63 Vdc
- Ultra high efficiency: 91% @ 12 Vin and 3.3 Vout
- Extremely low internal power dissipation
- Minimal thermal design concerns
- Designed in reliability: MTBF of 6,920,000 hours per Telcordia SR-332
- Ideal solution where board space is at a premium or tighter card pitch is required
- Industry standard surface-mount footprint
- Available RoHS compliant
- 2 year warranty

## Safety

UL/cUL CAN/CSA 22.2 No. E174104
UL 60950 File No. E174104

TÜV Product Service (EN60950)
Certificate No. B 03 10 38572

CB report and certificate to DE3-51686M1

The SMT05E series are non-isolated dc-dc converters packaged in a surface-mount footprint giving designers a cost effective solution for conversion from a 12 V source. The SMT05E has a wide input range (10 Vdc to 14 Vdc) and offers a wide 0.8 Vdc to 3.63 Vdc output voltage range with a 5A load, which allows for maximum design flexibility and a pathway for future upgrades. The SMT05E is designed for applications that include distributed power, workstations, optical network and wireless applications. Implemented using state of the art surface-mount technology and automated manufacturing techniques, the SMT05E offers compact size and efficiencies of up to 91%.

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# Specifications



All specifications are typical at nominal input, full load at 25°C unless otherwise stated.

## OUTPUT SPECIFICATIONS

| | | |
|---|---|---|
| Voltage adjustability | | 0.8-3.63 Vdc |
| Setpoint accuracy | | ±0.4% typ. |
| Line regulation | | ±0.2% typ. |
| Load regulation | | ±1.0% typ. |
| Total error band | | ±3.0% typ. |
| Minimum load | | 0 A |
| Overshoot/undershoot | | None |
| Ripple and noise | 5 Hz to 20 MHz | 60 mV pk-pk<br>25 mV rms |
| Temperature co-efficient | | ±0.01%/°C |
| Transient response | | 50 mV max. deviation<br>50 µs recovery to<br>within ±1.0% |

## INPUT SPECIFICATIONS

| | | |
|---|---|---|
| Input voltage range | | 10-14 Vdc |
| Input current | No load (max.) | 100 mA |
| Input current (max.) | | 1.85 A max. @ Io max.<br>and Vout = 3.3 V |
| Input reflected ripple | | 30 mA rms |
| Remote ON/OFF | | (See Note 1) |
| Start-up time | | 20 ms |

## EMC CHARACTERISTICS

| | |
|---|---|
| Electrostatic discharge | EN61000-4-2, IEC801-2 |
| Conducted immunity | EN61000-4-6 |
| Radiated immunity | EN61000-4-3 |

## GENERAL SPECIFICATIONS

| | | |
|---|---|---|
| Efficiency | | 91% |
| Insulation voltage | | Non-isolated |
| Switching frequency | Fixed | 330 kHz typ. |
| Approvals and standards | | EN60950<br>UL/cUL60950 |
| Material flammability | | UL94V-0 |
| Dimensions | (LxWxH) | 20.32 x 11.43 x 5.97 mm<br>0.800 x 0.450 x 0.235 inches |
| Weight | | 3 g (0.11 oz) |
| Coplanarity | | 100 µm |
| MTBF | Telcordia SR-332 | 6,920,000 hours |

## ENVIRONMENTAL SPECIFICATIONS

| | | |
|---|---|---|
| Thermal performance<br>(See Note 2) | Operating ambient, temperature | -40 °C to +100 °C |
| | Non-operating | -40 °C to +125 °C |

## PROTECTION

| | |
|---|---|
| Short-circuit | Continuous |
| Thermal | Automatic recovery |

# Specifications



All specifications are typical at nominal input, full load at 25°C unless otherwise stated.

| OUTPUT POWER (MAX.) | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT (MIN.) | OUTPUT CURRENT (MAX.) | EFFICIENCY (TYP.) | REGULATION | | MODEL NUMBER [3,4] |
|---|---|---|---|---|---|---|---|---|
| | | | | | | LINE | LOAD | |
| 16.5 W | 10-14 Vdc | 0.8-3.63 Vdc | 0 A | 5 A | 91% | ±0.2% | ±1.0% | SMT05E-12W3V3J |

## Part Number System with Options

**SMT05E-12W3V3-TJ**

- Product Family: SMT = Surface Mount
- Rated Output Current: 05 = 5 Amps
- Performance: E = Enhanced Performace
- Packaging Options [3]: No '-T' Suffix = Pb-free RoHS 6/6 compliant parts in trays e.g SMT30E-12W3V3J; -TJ = Pb-free RoHS 6/6 compliant part in Tape and Reel e.g SMT30E-12W3V3-TJ
- Output Voltage: 0.8 Vdc to 3.63 Vdc
- Type of Output: S = Single, W = Wide
- Input Voltage: 12 = 10 Vdc to 14 Vdc

### Output Voltage Adjustment of the SMT05E-12W3V3J Series

The ultra-wide output voltage trim range offers major advantages to users who select the SMT05E-12W3V3J. It is no longer necessary to purchase a variety of modules in order to cover ddcifferent output voltages. The output voltage can be trimmed in a range of 0.8 Vdc to 3.63 Vdc. When the SMT05E-12W3V3J converter leaves the factory the output has been adjusted to the default voltage of 0.8 V.

## Notes

1 The SMT05E features an 'Positive Logic' Remote ON/OFF operation. If not using the Remote ON/OFF pin, leave the pin open (the converter will be on). The Remote ON/OFF pin is referenced to ground.

The following conditions apply for the SMT05E:

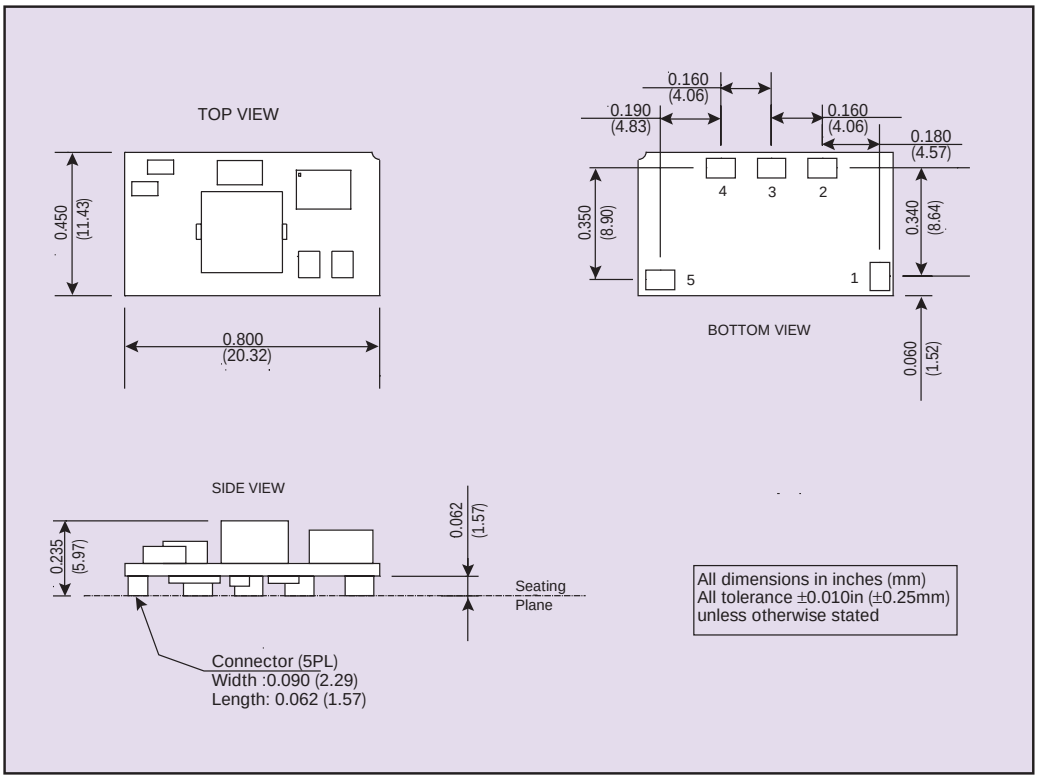
| Configuration | Converter Operation |
|---|---|
| Remote pin open circuit | Unit is ON |
| Remote pin pulled low [Von/off <0.8 V] | Unit is OFF |
| Remote pin pulled high [Von/off >1.6 V] | Unit is ON |

An 'Negative Logic' Remote ON/OFF version is also possible with this converter. To order please place the suffix '-R' at the end of the model numer, e.g. SMT05E-12W3V3-RJ.

2 Full derating curves available in both the Longform Datasheet and Application Note.

3 TSE RoHS 5/6 (non Pb-free) compliant versions may be available on special request, please contact your local sales representative for details.

4 NOTICE: Some models do not support all options. Please contact your local Artesyn representative or use the on-line model number search tool at http://www.artesyn.com/powergroup/products.htm to find a suitable alternative.




| PIN CONNECTIONS | |
|---|---|
| **PIN NUMBER** | **FUNCTION** |
| 1 | Remote ON/OFF |
| 2 | Vout |
| 3 | Trim |
| 4 | Ground |
| 5 | Vin |

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